## REMARKS

Claims 1-12 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### REJECTION UNDER 35 U.S.C. § 102

Claims 1, 2, 6, and 9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Lin (U.S. Pat. No. 6,577,424 B1). This rejection is respectfully traversed.

Claim 1 discloses, among other things, an on-line dispersion compensation device for a wavelength division optical transmission system. The system includes two optical path selectors and at least one chirped grating fiber unit. The chirped grating fiber unit is serially connected between the appropriate ports of the two optical path selectors. The chirped grating fiber unit selecting, reflecting, and dispersion compensating at least one wavelength inputted and bypassing other wavelengths. The input port of one optical path selector is connected with input optical signal of the device, the last stage output port of one optical path selector is connected with the input port of another optical path selector. The last stage output port of another optical path selector outputs the optical signal output of the device; and the chirped grating fiber unit further includes two connected chirped grating fibers with same wavelength band and set oppositely.

Lin at best discloses a chromatic dispersion compensator, including circulator 305 and 307, fiber Bragg gratings 306, 308, 314, and 316, and a compensating element 314, which may be a dispersion compensating fiber or a dispersion compensating

grating. According to Lin, the last stage output port (port 6) of circulator 305 is connected with the input port (port 8) of circulator 307 via the compensating element 314. Furthermore, the gratings 306, 308, 314, and 316 serially connected between the appropriate ports of the two circulators (port 5 of circulator 305 and port 7 of circulator 307) are Bragg gratings, which are used to select and reflect wavelengths to be dispersion compensated and can not be used for dispersion compensation.

More specifically, the structures of the dispersion compensation devices are different. Claim 1 recites that the last stage output port of one optical path selector is connected with the input port of another optical path selector. In other words, the last stage output port of one optical path selector can be connected with the input port of another optical path selector, either directly or through an optical fiber. In Lin, on the other hand, the last stage output port (port 6) of circulator 305 is connected with the input port (port 8) of circulator 307 via the compensating element 314, which may be a dispersion compensating fiber or a dispersion compensating grating, and by which dispersion compensation is conducted. Therefore the structure of the dispersion compensation device of claim 1 and that of Lin differ.

Further, claim 1 recites that at least one chirped grating fiber unit for dispersion compensation is serially connected between the appropriate ports of the two optical path selectors, by which dispersion compensation to at least one wavelength inputted can be conducted. In Lin, on the other hand, Bragg gratings are used in the corresponding location, which can only be used for selecting and reflecting a wavelength to be dispersion compensated and can not be used for dispersion

compensation. The dispersion compensation is conducted by the dispersion compensating element 314 according to Lin.

Further yet, claim 1 recites that the chirped grating fiber unit includes two connected chirped grating fibers with same wavelength band and set oppositely. Due to the inherent characteristic of the chirped grating fiber, one chirped grating fiber can reflect one or more than one wavelength and at the time of reflecting optical signals the dispersion of the wavelength reflected can be compensated. Moreover, the wavelength to be dispersion compensated is tunable. Therefore, the one chirped grating fiber unit of claim 1 can be used to compensate the dispersion of one or more than one wavelength. Lin, on the other hand, employs four Bragg gratings to reflect two wavelengths $\lambda 1$ and $\lambda 2$. Those skilled in the art would understand that due to the inherent characteristic of the Bragg grating, one Bragg grating is typically used to reflect only one wavelength, so if two wavelength needs to be reflected for dispersion compensation, four Bragg gratings are needed. Based on this, if 3 wavelengths need to be reflected for dispersion compensation, 6 Bragg gratings are needed and so on. In this case, if even more wavelengths need to be reflected for dispersion compensation, a large number of Bragg gratings would be needed. Moreover, once the dispersion compensation device is made, the wavelength that can be dispersion compensated is fixed, which can not be tuned as that of the dispersion compensation device of Claim 1.

Claim 1 also discloses that wavelength selection, wavelength reflection and dispersion compensation are all implemented by the chirped grating fiber unit. According to Lin, the functions of wavelength selection and wavelength reflection are implemented by the Bragg gratings and the function of dispersion compensation is

implemented by the dispersion compensating element 314. That is, claim 1 of the present invention replaces the Bragg gratings and the dispersion compensating element with one element - the chirped grating fiber unit. Thus the dispersion compensation device according to the present invention may have such advantages as miniaturization and economy over that of Lin.

More specifically, if the dispersion compensating element 314 of Lin is a dispersion compensating fiber, the length of the dispersion compensating fiber should be enough for dispersion compensation, therefore, the power loss and the time delay of the optical signal during the process of dispersion compensation would be very large due to the long length of the dispersion compensating fiber. An optical amplifier 322 could be employed to overcome the excessive loss, as shown in the right part of Figure 3 of Lin. The integration of the dispersion compensation device would become difficult due to the long length of the dispersion compensating fiber. In the dispersion compensation device of claim 1, the functions of wavelength selection, wavelength reflection and dispersion compensation can all be implemented by the chirped grating fiber unit and the last stage output port of one optical path selector can be connected with the input port of another optical path selector directly. Thus no optical amplifier is needed, the time delay and the power loss can be greatly reduced, and the integration of the device is made possible.

If the dispersion compensating element 314 of Lin is a dispersion compensating grating, since the cost of a grating is much higher than an optical fiber, the cost of the dispersion compensation device provided by Lin will be higher than that of the dispersion compensation device of claim 1 because Lin requires more gratings.

In view of the foregoing, Applicant respectfully submits that claim 1 defines over the art cited by the examiner. Likewise, claims 2, 6, and 9, which depend from claim 1 also define over the art cited by the examiner.

**REJECTION UNDER 35 U.S.C. § 103**

Claims 4 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin (U.S. Pat. No. 6,577,424 B1) in view of Laming et al. (U.S. Pat. No. 6.292.601 B1). This rejection is respectfully traversed.

Applicant respectfully submits that the arguments made above with respect to Lin apply equally hereto. Further, the combination of Lin and Laming fails to teach or suggest claims 4 and 7. In view of the foregoing, Applicant respectfully requests withdrawal of the rejection.

Claims 5 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin (U.S. Pat. No. 6,577,424 B1) in view of Epworth (U.S. Pat. No. 6.271.952 B1). This rejection is respectfully traversed.

Applicant respectfully submits that the arguments made above with respect to Lin apply equally hereto. Further, the combination of Lin and Epworth fails to teach or suggest claims 5 and 8. In view of the foregoing, Applicant respectfully requests withdrawal of the rejection.

**ALLOWABLE SUBJECT MATTER**

The Examiner states that claims 3 and 10-12 would be allowable if rewritten in independent form. Applicant thanks the Examiner for allowance of these claims and

respectfully defers amending the allowable claims into independent form until after the Examiner has considered the above amendments and remarks.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Sept 5, 2006

By: _____
Joseph M. Lafata, Reg. No. 37,166

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

JML/jmg